

WHAT IS CLAIMED IS:

1. A woven loop fastener product including a fabric base having ground yarns comprising interwoven warp yarns and filling yarns extending respectively in warp and filling directions, and pile yarns interwoven with the fabric base and forming engageable loops extending from one side of the fabric base for engagement with hooks,

5 wherein the pile yarns comprise filaments having a nominal diameter, and wherein the pile yarn filaments extend from a near side of the fabric base to a mean loop height less than about 30 times the nominal pile yarn filament diameter.

2. The woven loop fastener product of claim 1 wherein the fabric base has an
10 overall thickness, exclusive of the pile yarns, of less than about 0.010 inch (0.254 mm).

3. The woven loop fastener product of claim 2 wherein the overall thickness is less than about 0.0075 inch (0.191 mm).

15 4. The woven loop fastener product of claim 1 wherein the fabric base has an overall thickness, exclusive of the pile yarns, of less than about 5 times the nominal pile yarn filament diameter.

20 5. The woven loop fastener product of claim 1 wherein the pile yarns are in a griegie condition.

6. The woven loop fastener product of claim 5 having a basis weight of less than about 300 grams per square meter.

25 7. The woven loop fastener product of claim 1 having an overall thickness, as a sum of fabric base thickness and the mean loop height, of less than about 0.15 inch (3.81 mm). (unnapped)

30 8. The woven loop fastener product of claim 7 wherein the pile yarns are in an unnapped condition.

9. The woven loop fastener product of claim 7 wherein the overall thickness is less than about 0.10 inch (2.54 mm).

5 10. The woven loop fastener product of claim 9 wherein the overall thickness is less than about 0.070 (1.78 mm)

11. The woven loop fastener product of claim 1 wherein the mean loop height is less than about 0.10 inch (0.254 mm).

10 12. The woven loop fastener product of claim 11 wherein the mean loop height is less than about 0.06 (0.152 mm).

13. The woven loop fastener product of claim 1 wherein the pile yarns each
15 comprise multiple filaments.

14. The woven loop fastener product of claim 13 wherein the pile yarns are each of between about 160 and 300 denier.

20 15. The woven loop fastener product of claim 1 wherein each pile yarn filament is between about 10 and 30 denier.

16. The woven loop fastener product of claim 15 wherein each pile yarn filament is between about 15 to 25 denier.

25 17. The woven loop fastener product of claim 1 wherein the pile yarn filaments have a tenacity of at least 3.5 grams per denier.

30 18. The woven loop fastener product of claim 17 wherein the pile yarn filaments have a tenacity of at least 4.0 grams per denier.

19. The woven loop fastener product of claim 1 wherein the ground yarns comprise multifilament yarns each having a denier of between about 70 and 140.

20. The woven loop fastener product of claim 1 having a Gurley stiffness of less than 200 mg.

21. The woven loop fastener product of claim 1 wherein the mean loop height is less than about 27 times the nominal pile yarn filament diameter.

22. The woven loop fastener product of claim 21 wherein the mean loop height is less than about 24 times the nominal pile yarn filament diameter.

23. The woven loop fastener product of claim 1 further comprising a binder coat applied to a side of the product opposite the loops.

24. A woven hook fastener product including a fabric base having ground yarns comprising interwoven warp yarns and filling yarns extending respectively in warp and filling directions, and hook filaments interwoven with the fabric base and forming hooks extending from one side of the fabric base for engagement with loops,

wherein the hook filaments extend from a near side of the fabric base to a mean hook height of less than about 6.0 times a nominal diameter of the hook filaments.

25. The woven hook fastener product of claim 24 wherein each hook is formed by a severed hook filament loop extending out of the fabric base at two points separated by a span, measured along a line segment between centers of the hook filament at a near surface of the fabric base, and wherein each hook has a stance ratio, defined as a ratio of the span of the hook to an overall height of the hook from the near surface of the fabric base, of at least 50 percent.

26. The woven hook fastener product of claim 25 wherein the stance ratio is at least 55 percent.

27. The woven hook fastener product of claim 24 wherein each hook is formed by a severed hook filament loop extending out of the fabric base at two points separated in both warp and filling directions.

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28. The woven hook fastener product of claim 24 wherein the fabric base has an overall thickness, exclusive of the hook filaments, of less than about 0.010 inch (0.254 mm).

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29. The woven hook fastener product of claim 24 wherein the fabric base has an overall thickness, exclusive of the hook filaments, that is less than the nominal hook filament diameter.

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30. The woven hook fastener product of claim 24 having an overall thickness, as a sum of fabric base thickness and the mean hook height, of less than about 0.075 inch (1.91 mm).

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31. The woven hook fastener product of claim 24 wherein the mean hook height is less than about 0.065 inch (1.65 mm).

32. The woven hook fastener product of claim 31 wherein the mean hook height is less than about 0.05 inch (1.27 mm).

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33. The woven hook fastener product of claim 24 wherein the hook filaments are drawn nylon monofilaments.

34. The woven hook fastener product of claim 24 wherein the hook filaments are each between about 0.0065 to 0.009 inch (0.165 to 0.229 mm) in nominal diameter.

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35. The woven hook fastener product of claim 24 wherein the hook filaments have a tenacity of at least 4.0 grams per denier.

36. The woven hook fastener product of claim 24 wherein the ground yarns comprise multifilament yarns each having a denier of between about 60 and 140.

5 37. The woven hook fastener product of claim 24 having a Gurley stiffness of less than 500 mg.

38. The woven hook fastener product of claim 24 having a Gurley stiffness of less than about 200.

10 39. The woven hook fastener product of claim 24 having a greige basis weight of less than about 300 grams per square meter.

40. A woven hook fastener product including a fabric base having ground yarns comprising interwoven warp yarns and filling yarns extending respectively in warp and
15 filling directions, and hook filaments interwoven with the fabric base and forming hooks extending from one side of the fabric base for engagement with loops,

wherein the fabric base has an overall thickness, exclusive of the hook filaments, that is less than the nominal hook filament diameter.

20 41. The woven hook fastener product of claim 40 wherein each hook is formed by a severed hook filament loop extending out of the fabric base at two points separated by a span, measured along a line segment between centers of the hook filament at a near surface of the fabric base, and wherein each hook has a stance ratio, defined as a ratio of the span of the hook to an overall height of the hook from the near surface of the fabric base, of at least
25 50 percent.

42. The woven hook fastener product of claim 41 wherein the stance ratio is at least 55 percent.

30 43. The woven hook fastener product of claim 40 wherein the fabric base has an overall thickness, exclusive of the hook filaments, of less than about 0.010 inch (0.254 mm).

44. The woven hook fastener product of claim 40 having an overall thickness, as a sum of fabric base thickness and the mean hook height, of less than about 0.075 inch (1.91 mm).

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45. The woven hook fastener product of claim 40 wherein the mean hook height is less than about 0.065 inch (1.65 mm).

46. The woven hook fastener product of claim 40 wherein the hook filaments are each between about 0.0065 to 0.009 inch (0.165 to 0.229 mm) in nominal diameter.

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47. The woven hook fastener product of claim 40 wherein the hook filaments have a tenacity of at least 4.0 grams per denier.

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48. The woven hook fastener product of claim 40 wherein the ground yarns comprise multifilament yarns each having a denier of between about 60 and 140.

49. The woven hook fastener product of claim 40 having a greige basis weight of less than about 300 grams per square meter.

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